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Claims

1. In a computer readable medium, a treemap visualization engine for generating treemap visualizations from arbitrary hierarchical data from a caller resource, comprising:
 - treemap generator object that receives an arbitrary set of hierarchical data from a caller resource and draws a treemap representation of the data; and
 - a treemap control object for displaying the treemap representation in a software application.
2. The visualization engine of claim 1 in which the treemap generator object includes a TreemapGenerator interface having a property that receives the set of hierarchical data as an XML string to form a collection of Node objects.
3. The visualization engine of claim 2 in which the XML string includes a <Node> element for each treemap node, the <Node> element having a child <Nodes> element that contains the child nodes of the <Node> element.
4. The visualization engine of claim 2 in which the treemap generator object further includes a Nodes interface having a method that adds an individual node object to the collection of Node objects.
5. The visualization engine of claim 1 in which the treemap generator object includes a TreemapGenerator interface having a method that draws the treemap representation of the data onto an object provided by the caller resource.
6. The visualization engine of claim 1 in which the treemap generator object further includes a Nodes interface having a method that adds an individual node object to a collection of Node objects.
7. The visualization engine of claim 1 in which the treemap control object includes a TreemapControl interface having a property that receives the set of hierarchical data as an XML string to form a collection of Node objects.
8. The visualization engine of claim 7 in which the XML string includes a <Node> element for each treemap node, the <Node> element having a child <Nodes> element that contains the child nodes of the <Node> element.
9. In a computer readable medium, a treemap visualization engine for

generating treemap visualizations from arbitrary hierarchical data from a caller resource, comprising:

treemap generator object that receives an arbitrary set of hierarchical data from a caller resource and draws a treemap representation of the data, the treemap generator object including a treemap generator interface, a Nodes interface, and a Node interface; and

a treemap control object for displaying the treemap representation in an application, the treemap control object including a Treemap Control interface, a Nodes interface, and a Node interface.

10. The visualization engine of claim 9 in which the treemap generator interface includes a property that receives the set of hierarchical data as an XML string to form a collection of Node objects. 2

11. The visualization engine of claim 10 in which the XML string includes a <Node> element for each treemap node, the <Node> element having a child <Nodes> element that contains the child nodes of the <Node> element. 3

12. The visualization engine of claim 10 in which the Nodes interface includes a method that adds an individual node object to the collection of Node objects. 4

13. The visualization engine of claim 9 in which the treemap generator interface includes a method that draws the treemap representation of the data onto an object provided by the caller resource. 5

14. The visualization engine of claim 9 in which the Nodes interface includes a method that adds an individual node object to a collection of Node objects. 6

15. The visualization engine of claim 9 in which the treemap control interface includes a property that receives the set of hierarchical data as an XML string to form a collection of Node objects. 7

16. The visualization engine of claim 15 in which the XML string includes a <Node> element for each treemap node, the <Node> element having a child <Nodes> element that contains the child nodes of the <Node> element. 8

17. In a computer readable medium, a treemap visualization engine for

generating treemap visualizations from arbitrary hierarchical data from a caller resource, comprising:

treemap generator object that receives an arbitrary set of hierarchical data from a caller resource and draws a treemap representation of the data, the treemap generator object including a treemap generator interface, a Nodes interface, and a Node interface;

18. The visualization engine of claim 17 in which the treemap generator interface includes a property that receives the set of hierarchical data as an XML string to form a collection of Node objects. 2

19. The visualization engine of claim 18 in which the XML string includes a <Node> element for each treemap node, the <Node> element having a child <Nodes> element that contains the child nodes of the <Node> element. 3

20. The visualization engine of claim 17 in which the Nodes interface includes a method that adds an individual node object to the collection of Node objects. 4

portion of the Internet. The relative sizes of the boxes are based on the number of posts per newsgroup over a one-month period.

[0010] It will be appreciated that treemap visualizations may be applied to any type of hierarchical or nested information, not just hierarchical relationships of newsgroups in the Usenet. Examples include the amounts of information in different types of computer file systems (e.g., databases, email folders, file server directories, etc.), population census information, inventory or resource listings, etc.

[0011] Fig. 2 is a block diagram of a treemap visualization engine 200 for generating treemap visualizations from arbitrary hierarchical or nested data (including hierarchical or nested data structures). Treemap visualization engine 200 provides a general purpose, object-based tool that is compatible with the wide variety of hierarchical or nested information types that can be represented with treemap visualizations. In contrast, prior treemap generators conventionally were adapted specifically for a particular hierarchical data type and were unable to accommodate other data types.

[0012] Treemap visualization engine 200 includes a treemap generator 202, which functions as a drawing engine that takes a set of hierarchical or nested data from a caller resource 204 and draws a treemap representation of the data. The directional lead lines in Fig. 2 point toward features (e.g., treemap generator 202) that are made use of by features at the bases of the lead lines (e.g., caller resource 204).

[0013] Caller resource 204 may be any source of hierarchical or nested data, such as email system folder contents, file directory contents, a server-side Web application, or any other hierarchical data representing any type of information, whether or not computer-related. Treemap generator 202 creates from the hierarchical data a corresponding treemap visualization, such as treemap visualization 100 (Fig. 1). In one implementation, treemap generator 202 does not have its own user interface. As a result, treemap generator 202 draws on a surface or